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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,315

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Hiroshi Yamada

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EXAMINER

EOFF, ANCA

ART UNIT

PAPER NUMBER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,315	<b>Applicant(s)</b> YAMADA ET AL.	
	<b>Examiner</b> ANCA EOF	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-21 are pending in the application.
2. The foreign priority documents JP 2004-018470 filed on January 27, 2004 and JP 2004-237600, filed on August 17, 2004 were received and acknowledged. However, in order to benefit of the earlier filing date, certified English translations are required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 6 recite the limitation for a "silicone compound comprising a compound having at least one organic group selected from the group consisting of an aryl group, a linear or branched alkyl group substituted with at least one aryl group, an alkoxycarbonyl group, an alkoxy group and a polyoxyalkylene group and having a hydrogen atom ( $\alpha$ -position hydrogen) bonded to a carbon atom to which the organic group is directly bonded".

This limitation for the  $\alpha$ -position hydrogen is interpreted as "the hydrogen atom bonded to the carbon atom of the organic group which links the organic group to a silicone compound " (as taught on pages 25-26 of the specification).

However, if the organic group is an alkoxy group, an oxygen atom links the organic group to the silicone compound. There is no carbon linking the organic group and therefore no  $\alpha$ -position hydrogen atoms.

Also, if the organic group is an alkocycarbonyl group, a carbonyl group links the group to the silicone compound. There are no  $\alpha$ -position hydrogen atoms in an alkocycarbonyl group.

Therefore, it is not clear what is the applicant claiming as his invention.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota et al. (WO 03/022594, wherein the citations are from the English equivalent document US Pg-Pub 2004/0157162).

With regard to claims 1 and 21, Yokota et al. disclose a photosensitive resin composition for forming a laser engravable printing element, wherein the photosensitive composition comprises:

(a) a resin having a number average molecular weight between 1,000 and 100,000 and having a polymerizable unsaturated group;

(b) an organic compound having a number average molecular weight of less than 1,000 and having at least one polymerizable group per molecule (par.0024-0026).

Yokota et al. further disclose that at least a part of (a) may be a plastomer, such as polydimethylsiloxane (par.0055), which is equivalent to the organic silicon compound (c) with at least one Si-O bond in a molecule and no polymerizable unsaturated group in the molecule of the instant application.

Yokota et al. further teach that if a plurality of polymers is used in combination, the polymers may be in a polymer blend (par.0054).

While Yokota et al. do not specifically teach a composition comprising the components (a), (b) and a polydimethylsiloxane, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain such a mix, based on Yokota's teachings regarding the components (a) and (b) that the fact that a part of the component (a) may be polydimethylsiloxane (par.0047 and par.0055).

The polydimethylsiloxane may be used in an amount of 30-100% by weight based on the total weight of the resin (a) (par.0055).

When the photosensitive composition comprises 100 parts by weight of compound (a), 200 parts by weight of compound (b), 100 parts by weight of compound (c), as shown in par.0047 and when 30 % by weight of resin (a) is polydimethylsiloxane (par.0055), the polydimethylsiloxane will represent 7% by weight of the photosensitive composition.

This value is within the range of the instant application.

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With regard to claim 2, Yokota et al. disclose that polydimethylsiloxane may replace a part of the resin (a) (par.0055). While Yokota et al. do not disclose the number average molecular weight of polydimethylsiloxane, it would have been obvious to one of ordinary skill in the art to use a polydimethylsiloxane with a number average molecular weight in the same range as the range for the number average molecular weight of resin (a).

As resin (a) has number average molecular weight between 1,000 and 100,000, it would have been obvious to use a polydimethylsiloxane in the same range.

Polydimethylsiloxane is equivalent to the compound of formula (1) of the instant application, wherein R is a  $\text{--CH}_3$  group,  $p=2$ ,  $r=0$ ,  $s=0$  (see pages 13-15 of the specification).

The polydimethylsiloxane of Yokota et al. is identical to the compound (1) of the instant application and absent a record to the contrary, it is the examiner's position that the polydimethylsiloxane of Yokota et al. is liquid at 20°C.

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977) (MPEP 2112. I. SOMETHING WHICH IS OLD DOES NOT BECOME PATENTABLE UPON THE DISCOVERY OF A NEW PROPERTY )

With regard to claim 3, Yokota et al. disclose that a part of the resin (a) may be polydimethylsiloxane (par.0055).

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The repeating unit of polydimethyl siloxane is  $-(CH_3)_2SiO_2-$  which is equivalent to the formula (1) of the instant application, wherein R is  $-CH_3$  (linear alkyl with 1 carbon atom),  $p=2$ ,  $r=0$ ,  $s=0$

With regard to claim 7-9, Yokota et al. further disclose that the photosensitive resin further comprises a photopolymerization initiator (d) (par.0091).

Examples of the photopolymerization initiator include benzophenone (par.0091), which is equivalent to the hydrogen extraction polymerization initiator of the instant application, as taught on page 45 of the specification and acetophenones (par.0091), which are equivalent to the degradable photopolymerization initiator of the instant application, as taught on page 46 of the specification of the instant application.

Examples of acetophenones include 2,2-dimethoxy-2-phenylacetophenone (par.0041), which is equivalent to the 2,2-dialkoxy-2-phenylacetophenone of the instant application.

With regard to claim 10, Yokota et al. disclose that the photopolymerization initiator (d) may be 2-methyl-1-(4-methyl-thio)phenyl)-2-morpholino-propane-1-one (par.0091), which is equivalent to the compound having both of a site functioning as the hydrogen extraction photopolymerization initiator and a site functioning as the degradable polymerization initiator in the same molecule, as taught on pages 47-48 of the specification of the instant application.

With regard to claims 11 and 13, Yokota et al. further disclose that the resin (a) has a number average molecular weight between 2,000 and 100,000, more preferably between 5,000 and 100,000 (par.0051) and an average number of polymerizable

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unsaturated group per molecule of at least 0.7, preferably more than 1.0 (par.0051-0053). The examples of resins (a) in par.0052-0054 are equivalent to the resins (a) of the instant application.

Yokota et al. do not specifically teach that resin (a) is liquid at 20°C. However, based on the similarities between the resin (a) of Yokota et al. and the resin (a) of the instant application and, absent a record to the contrary, it is the examiner's position that the resin (a) of Yokota et al. is liquid at 20°C (MPEP 2112).

The resin (a) may be a resin with ester bond or urethane bonds (par. 0054).

The compound (b) may also have ester bonds (par. 0063).

With regard to claim 12, Yokota et al. further disclose that the thickness of the printing element is between 0.1 and 15 mm (par.0103), which encompasses the range of the instant application.

As the haze of the photosensitive resin composition is not mention, it is the examiner's position that the haze is 0%.

With regard to claim 14, Yokota et al. further disclose that the printing element may have a coating comprising a silane coupling agent (par.0111), wherein the concentration of the coupling agent in the coating solution is between 0.05 and 10% by weight (par.0115).

The silane coupling agent in the coating layer is equivalent to the organic silicon compound on a surface of the laser engravable printing substrate of the instant application.



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With regard to claim 15, Yokota et al. further disclose that a laser engravable printing element which is a cured photosensitive resin composition having a shape of a sheet or cylinder (par.0033).

The photosensitive resin composition comprises:

(a) a resin having a number average molecular weight between 1,000 and 100,000 and having a polymerizable unsaturated group;

(b) an organic compound having a number average molecular weight of less than 1,000 and having at least one polymerizable group per molecule;

Yokota et al. further disclose that at least a part of (a) is a elastomer, such as polydimethylsiloxane (par.0055), which is equivalent to the organic silicon compound with at least one Si-O bond in a molecule and no polymerizable unsaturated group in the molecule of the instant application.

While Yokota et al. do not specifically teach a composition comprising the components (a), (b) and a polydimethylsiloxane, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain such a mix, based on Yokota's teachings regarding the components (a) and (b) that the fact that a part of the component (a) may be replaced by polydimethylsiloxane (par.0047 and par.0055).

Claim 16 provides only for the intended use of the laser engravable printing substrate of claims 14 and 15 in a process of cutting, grinding, polishing and blasting. This intended use does not add any patentable weight to the laser engravable printing substrates of claims 14 or 15.

With regard to claim 17, Yokota et al. further disclose that an elastomer layer is formed by photocuring a resin which is in a liquid state at room temperature (par.0040).

With regard to claim 18, Yokota et al. further teach that the laser engraving process may be performed with lasers in near-infrared range (par.0118).

With regard to claim 19, the composition of Yokota et al. comprises the same components as the instant application, as shown above.

Yokota et al. do not specifically disclose the wettability characteristic of the printing element. However, based on the similarities between the components of the printing element of Yokota and the components of the laser engravable substrate of the instant application and, absent a record to the contrary, it is the examiner's position that the printing element of Yokota et al. has a surface with a wettability characteristic such that when 20ml of an indicating liquid with a surface energy of 30 mN collected using a quantitative and fixed type micropipette is added dropwise onto the surface and a maximum diameter of an area where the droplet spreads is measured after 30 seconds, the diameter of the droplet is 4 mm or more and 20 mm or less (MPEP 2112).

Claim 20 provides only for the intended use of the laser engravable substrate of claims 14 or 15. The limitations of claim 20 do not add any patentable weight to the laser engravable substrate of claims 14 or 15.

### ***Response to Arguments***

7. Applicant's arguments filed on August 26, 2009 have been fully considered but they are not persuasive.

On pages 2-3 of the Remarks, the applicant argues the rejection of claims 1-3 and 7-21 under 35 USC 103(a) over Yokota et al. (WO 03/022594, wherein the citations are from the English equivalent document US Pg-Pub 2004/0157162).

The applicant first notes that inventors of Yokota et al. (Tomeba and Yokota) are the inventors named in the present application. The examiner agrees but would also like to point out that Yokota et al. (WO 03/022594) was published on March 20, 2003, which is more than 1 year before the US effective filing date of January 26, 2005. Therefore, Yokota et al. (WO 03/022594) qualifies as prior art with a 102(b) for the present application.

On page 3 of the Remarks, the applicant argues that Yokota et al. do not teach that a plastomer such as polydimethylsiloxane may replace at least a part of resin (a) but that at least a part of resin (a) may be a elastomer that is modified to introduce a polymerizable unsaturated group in accordance with the requirements for resin (a). The applicant further argues that when a elastomer is used , at least in part, as component (a), it must meet the requirement for (a) by having a polymerizable unsaturated group. If polydimethylsiloxane is used as part of (a), the resin would be polydimethylsiloxane with a polymerizable unsaturated group having a number average molecular weight of 1000 to 100,000, which is distinct from the "organic silicon compound having at least one Si-O bond in a molecule and having no polymerizable unsaturated group in molecule".

The applicant concludes that Yokota et al. do not teach the claimed organic silicon compound of the instant application.

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The examiner would like to show that Yokota et al. teach that one or more polymers can be used as resin (a) and, when a plurality of different polymers is used in combination, the polymers may be in the form of either a copolymer or a *polymer blend* (par.0054).

Additionally, Yokota et al. teach that at least a part of the resin (a) is a elastomer, such as polydimethylsiloxane (par.0055).

Therefore, based on Yokota's teachings in par.0054-0055, one of ordinary skill in the art would have been motivated to use polydimethylsiloxane *blended* with other resin(s) (a).

The examiner acknowledges the content of par.0057, which shows the method of producing the resin (a) by directly introducing polymerizable unsaturated groups at the terminal of polymers.

However, based on the teachings in par.0054-0055, one of ordinary skill in the art would be motivated to use a resin (a) with polymerizable unsaturated groups in a blend with a elastomer, such as polydimethylsiloxane.

8. Applicant's arguments on pages 3-4 of the Remarks filed on August 28, 2009, with respect to claims 4-6 have been fully considered and are persuasive.

The rejection of the rejection of claims 4-6 under 35 USC 103(a) over Yokota et al. (WO 03/022594, wherein the citations are from the English equivalent document US Pg-Pub 2004/0157162) in view of Harasta et al. (US Patent 4,426,431) has been withdrawn.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANCA EOFF whose telephone number is (571)272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. E./  
Examiner, Art Unit 1795

/Cynthia H Kelly/  
Supervisory Patent Examiner, Art Unit 1795